STATE OF MONTANA
JOB PROFILE AND EVALUATION

The job profile is a streamlined position description and may serve as the core document for all human resource functions such as recruitment, selection, performance management and career and succession planning. It was developed, initially, for use in classifying positions in Pay Plan 020.

If you are converting a position to Pay Plan 020 and the position has not changed simply cut and paste the information needed from the current position description. The position description contains sections that are no longer used to classify the position, such as: Working Conditions and Physical Demands; Management and Supervision of Others; Supervision Received; Scope and Effect; and Personal Contacts. These may still be important to the position and may be included in **Section IV** – **Other Important Job Information.**

When working with a new position, classification request or change to a position in Pay Plan 020, complete the information below to provide the required documentation for classification.

SECTION I – Identification

Working Title Engineering Project Aide	Job Code Number 005902	Job Code Title Engineering Project Aide
Pay Band 2	Position Number 95734	☐ FLSA Exempt ☐ FLSA Non-Exempt
Department Transportation		Division and Bureau Glendive
Section and Unit		Work Address and Phone
Profile Produced By Bonnie Sedita		Work Phone 406-523-5800

Work Unit Mission Statement or Functional Description - This section should include a complete statement of the mission or function as it relates to the work unit.

The Highways and Engineering Division prepares projects for bidding and coordinates highway construction. The division is made up of the Materials, Construction, Right-of-Way, Bridge, and Preconstruction Bureaus; the CADD Systems and Engineering Management Support Sections; and five District Construction Offices for budget and workforce purposes.

Personnel in the construction program are responsible for supervising highway and bridge construction from the time a construction contract is awarded to a private contractor until the project is completed and the work approved. They perform preliminary survey work and ensure roads and bridges are built or reconstructed to established standards. The MDT District offices include Butte, Missoula, Billings, Glendive, and Great Falls. During highway construction projects, district personnel work closely with the contractor, conducting construction surveys, inspecting the work, and monitoring traffic control.

Describe the Job's Overall Purpose:

This position is an Engineering Project Aide responsible for basic survey, inspection and office work related to highway and bridge construction projects. Duties include routine staking and surveying; basic inspection and materials sampling/testing; assisting with location survey work by performing basic survey support; construction staking and surveying; and a variety of clerical and administrative tasks in support of construction activities. The position reports to a higher-level Engineering Project Technician (a Crew Chief or lead worker), and does not supervise others.

SECTION II - Major Duties or Responsibilities	**% of Time**
This section should be a clear concise statement of the position's duties. Well written thorough task duty statements are required here to accurately evaluate the position. 1. What are the major duties or responsibilities assigned to this position? Group duties in order of importance and estimate the percent of time needed to perform each duty. **NOTE:** Because you are identifying **major** duties usually 3-5, the quantity of time probably will not be less than **20%.** If a duty is essential but not performed routinely you should list it. For example, lobbying during the legislative session may not take up a large percent of total work time, but can be an essential duty.	
A. <u>Location Surveying</u> Perform location survey work to set control and reference points and to gather preliminary site and survey information used for project design. This involves representing and documenting topographic, hydraulic, property and other survey data; and collecting and documenting related site information (e.g., soil and gravel pit surveys). This work requires knowledge of highway construction methods and techniques; topographical, hydraulic, and property surveying; the Montana Construction Manual, the Montana Survey Manual, and Standard Specifications for Road and Bridge Construction. The work requires skill and ability in the operation of conventional and radial stake out surveying equipment and in survey methods and techniques. 1. Mark survey reference points as instructed, and install monuments by measuring distance, direction and elevation from pre-existing monuments,	30%

including reference points for aerial surveys.

2. Determine when and where to place rod or picket to gather and record survey data based on topographic features and surrounding terrain (e.g. looking at the bottom of a ditch) by observing breaks in elevation and other visual assessment. Communicate with the Crew Chief through verbal or hand signals to coordinate placement and measurements.

3. Identify the topographic, hydraulic or other feature surveyed, and relay the information to the Crew Chief for the proper assignment and recording of feature codes.

4. Locates and marks property boundaries and utility right-of-ways by identifying and marking points based on distance from established references and instructions from the Crew Chief.

B. Construction staking and surveying — 30%

Perform technical construction staking and surveying work to prepare the location for project construction. This involves slope staking, culvert staking, channel change staking, reestablishing centerline from reference points, blue topping subgrade and gravel courses, and related staking and surveying work. This work requires knowledge of construction surveying and highway construction methods and operations, Montana Construction Manual, the Montana Survey Manual, and Standard Specifications for Road and Bridge Construction. The work also requires the ability to use plans and specifications and follow instructions.

1. Mark the exact location of highway centerline, traverse points, property boundaries and design feature layouts such as horizontal and vertical curves, culverts, embankments and guardrails by surveying distances and elevations from reference points established in the preconstruction survey as instructed by the Crew Chief.

2. Serve as chainman or rodman for construction survey activities by holding the picket, pogo rod, and/or tape and placing them in the proper location as directed by the Crew Chief. Use pins or tacks to ensure placement on the exact location on established hubs or caps.

3. Correctly locate stakes to correlate design plan to site terrain based on verbal instructions from the Crew Chief. Mark stakes with letters and number codes to provide a description of the point (e.g., placement and slope of an embankment, property corners or boundaries, hydraulic features, etc.), point name or number, distance from centerline, etc.

C. Inspection and testing — 25%

Perform basic project inspection and material sampling/testing tasks under the guidance of higher level technicians to assist in determining the acceptability of materials, ensuring compliance with contract specifications and construction standards, and to

provide information for the Project Manager. This involves gathering information regarding the placement and installation of materials, performing or monitoring material sampling and testing, and ensuring samples and related documentation are collected and labeled according to MDT guidelines. This work requires knowledge of inspection, survey, sampling and laboratory testing protocols and procedures; the Montana Materials Manual, Montana Construction Manual, and Standard Specifications for Road and Bridge Construction; basic mathematics; and the ability to operate survey, sampling and testing equipment.

1. Review materials plans and specifications in conjunction with the crew chief or higher level technician to ensure familiarity with project requirements and to identify inspection tasks and requirements.

2. Take measurements and collect samples from backfill, embankments and road surface, to provide information used to ensure placement, materials, moisture content, lift depths and compaction methods are in compliance with specifications. Prepare and maintain field notes including documentation of quantities by recordation of ticket collection, depth checks and measurements.

3. Review material certifications provided by the contractor to ensure the actual materials on-site are covered by certifications by comparing identification numbers on materials (e.g., milling stamps) to certifications.

4. Collect samples, or oversee sample collection by contractors under the direction of the Crew Chief or lead worker by applying established sampling methods and techniques and/or operating a variety of sampling equipment. Samples must be collected or observed by MDT personnel in order to be considered official.

5. Prepare samples for testing based on the type of material, and procedures outlined in the manual. This involves technical processes such as preparing molds, pouring concrete cylinders, weighing, washing, shaking, crushing, and splitting samples. This involves observations as to the height, width, volume, dryness and other physical properties of the sample, and making adjustments as needed (e.g., extending drying times, reshaking, etc.).

6. Conduct a wide variety of specialized testing procedures on materials. This work involves following detailed procedures outlined in the materials manual for tests such as sieve analysis, specific gravity, compaction, moisture content, density, liquid limit, plastic limit, plasticity index, and slump of concrete, % fracture, concrete tests, air tests, concrete batching, weight per cubic foot, loss by wash, cylinders, slump, etc. The aide does not deviate from established procedures, and will seek assistance from higher level technicians on situations which are unclear.

7. Calculate test results and prepare proposed results for review by higher level technicians. Enter approved information on appropriate forms or into

the computer. This work involves the application of conversion factors and tables, algebraic equations and noting deviations from standard specifications.

8. Inspect guardrail, signing, compaction testing (PMS), electrical, concrete (curbs, sidewalks, gutters, structures, etc.), chip seals, seeding, fencing, striping and other project aspects. This involves assessing material types and certifications, reviewing placement and installation through taking measurements and taking and testing samples of materials to ensure compliance with department standards and contract requirements. At this level, the position focuses on sampling and testing, with higher level technicians responsible for assessment of processes and methods.

9. Document all aspects of construction inspection including quantities; locations; explanation of changes; conversations with contractors, MDT personnel and the public; contract equipment, personnel and shift worked; and problems encountered; and any instructions received.

10. Directly inform the contractor of work that is clearly not in compliance with contract plans or project specifications (e.g., inappropriate materials or placement), or notify the crew chief or higher level technician of more complex aspects of the project that appear to be out of compliance (e.g., inappropriate construction methods, materials not meeting specifications, DBE requirements, etc.)

D. Office work

10%

Perform a variety of clerical and administrative tasks in support of construction activities. This involves compiling notes and reports, maintaining electronic databases, and performing mathematical calculations. This work requires knowledge of highway construction terminology; business English, spelling, grammar and punctuation; mathematics including algebra and geometry; and skill in the operation of general office equipment including a programmable calculator and personal computer including typical business applications (e.g., word processing, spreadsheets, data entry screens, etc.).

1. Enter control points from plans, field survey notes, pay quantities, locations, etc. into the computer system using proper formats and coding. Ensure accuracy of data entry by checking system data against plans.

2. Perform miscellaneous support duties such as cleaning equipment, observing and reporting unsafe conditions, delivering supplies to various sites, running errands, etc.

2. Check field survey notes and construction field notes documenting pay quantities for accuracy and completeness by checking mathematical calculations, ensuring all notes and forms are complete, etc.

E. Other duties as assigned — 5%

Perform a variety of other technical and administrative work in support of district activities as assigned by the supervisor. This includes assisting other MDT programs on special projects and attending training and education as required.

3. Give specific examples of the types of problems solved, decisions made or procedures followed when performing the most frequent duties.

The Engineering Project Aide is expected to know many different types of soil and how to compact them. Such as how much water to add and what type of rollers to use.

When paving, they are expected to know what the pavement thickness is and how to compact pavement. How to look for segregation, what the mixing temperature is and most importantly, who to contact if something is wrong.

When surveying, they have to know what equipment is needed and make sure that it is in the truck.

4. What do you consider the most complicated part of the job?

The most complicated part of their job is trying to find what manual or what person to talk to, to fine the answers to their questions.

5. What guidelines, manuals or written established procedures are available to the incumbent?

The new Engineering Project Aide has The Standard Specifications for Road and Bridge Construction, The Materials Manual, The Survey Manual, The Contract Special Provisions and the Plan to help them with questions.

5. If this position supervises other positions, complete the following information.

The number of employees supervised is .

List the complexity level of the subordinates .

Please list the Position Number for those supervised .

Is this position responsible for:

☐ Hiring ☐ Firing ☐ Performance Management ☐ Promotions

☐ Supervision ☐ Discipline ☐ Pay Level ☐ Other:

6. Please attach an Organizational Chart (optional).

SECTION III - Minimum Qualifications - List the minimum requirements for **first day** of work.

Please list the main knowledge and skill areas required for the job:

The position requires knowledge of highway construction methods and techniques; topographical, hydraulic, and property surveying; the Montana Materials Manual, Montana Construction Manual, Montana Survey Manual, and Standard Specifications for Road and Bridge Construction; highway construction terminology; business English, spelling, grammar and punctuation; and mathematics including algebra and geometry.

The work requires skill in operating survey equipment, sampling and testing equipment (e.g., a nuclear densometer), personal computers and laptops, and skill in survey methods and techniques.

What behaviors are required to perform the duties? **NOTE:** Identifying behaviors used for recruitment and selection and other HR functions are part of building a competency model (see **Creating Competency Models** in Guide). A position description will provide helpful information if a model has not been developed. Often "abilities" from the current PD can be stated as desired and observable behaviors. For example, "the ability to communicate clearly in writing" can be restated "writes clearly and concisely".

Ability to learn quickly, follow instructions, accurately perform mathematics calculations and to establish and maintain effective relationships with others.

Education and experience: Please check the one box that indicates the **minimum** educational requirements for this job, as it relates to a new employee on the **first day** of work (not the educational background of the person now in the position):

- ☐ No education required
- X High school diploma or equivalent
- ☐ 1 year job-related college or vocational training
- ☐ 2 year job-related college or vocational training
- ☐ College degree (Bachelor's)
- ☐ Post-graduate degree or equivalent (e.g. Master's, JD)

There may be a variety of fields of study that are acceptable. A Human Resource Specialist may have a Bachelor's in Human Resources, Business Administration, Public Administration or another related field. Please specify the acceptable fields of study:

The required Knowledge, Skills and Abilities are typically acquired through a combination of education and experience equivalent to graduation from high school with coursework in algebra, geometry, and trigonometry.

Other education, training (software), certification (CPA), or licensing (pilot, psychologist) required (please specify):

Certification in nuclear densometer

Please check the one box that indicates the minimum amount of job-related work experience needed as a new employee on the first day of work (not the experience of the person now in the position):

☐ No prior work experience required

☐ 1 to 2 years of job-related work experience

☐ 3 to 4 years job-related work experience

☐ 5 or more years of job-related work experience

Specific experience (optional): At least six months experience with basic highway/road construction methods including surveying and sampling procedures and techniques.

☐ This agency will accept alternative methods of obtaining necessary qualifications.

For recruiting purposes please list examples of acceptable alternative methods of obtaining those qualifications. **These examples should appear on a vacancy announcement**.

SECTION IV – Other Important Job Information

List any other important information associated with this position, such as working conditions, supervision provided or received, scope and effect and personal contact.

Essential functions involve significant physical demands related to repeated lifting of up to 80 pounds (and occasionally greater weights), carrying survey equipment over rough terrain, climbing and bending to retrieve samples and operating gas, diesel, and electrically powered equipment. The position involves extensive overnight travel throughout the District in excess of 2,000 miles per month (often on short notice, weekends and holidays), and working outdoors in all types of weather.

The work environment involves harsh or caustic fumes, dust, extreme temperatures, wind, rain, and snow. Hazards associated with the work can be significant. The majority of the work is performed at construction sites or fabrication plants involving traffic passing the work site and working around heavy machinery such as front-end loaders, pavers, scrapers, rollers, and forklifts. The work also involves and risks associated with working with hazardous materials such as hot asphalt, lime, acids, and other chemicals. The risks of the work are such that extensive training in safety practices and procedures is required. Due to the nature of work elements (hot asphalt, heavy equipment, etc.) and hazardous tasks such as work around moving traffic and taking samples from hot plants, there is potential for significant injury.

This is a non-supervisory position.

The position reports to the Crew Chief. The Crew Chief or lead worker provide specific instructions on how to complete work. Work assignments are covered by topographical, hydraulic, and property surveying and highway construction methods and policies; project design and construction criteria and standards; AASHTO, FHWA, and ASTM standards; project specifications; the Montana Materials Manual, Montana Construction Manual, and Standard Specifications for Road and Bridge Construction; and sampling and laboratory testing protocols and procedures. This level of position generally performs routine surveying and inspection work according to strict procedures and under the direct guidance of a higher level Engineering Technician. Results of surveying and testing are reviewed by the lead worker and supervisor prior to final entry.

SECTION V – Signatures

My signature below (typed or hand written) indicates the statements in Section I to IV are accurate and complete.

Employee:

Signature	**Title**	**Date**

Immediate Supervisor:

Signature	**Title**	**Date**

Administrative Review:		
Signature	**Title**	**Date**

JOB EVALUATION FORM

This section is to be completed by a trained classifier in the agency or by State Personnel Division.

Prepared By	Date

Position Status: ☐ Reclassified ☐ Vacant ☐ New Position

Choice of Class Series:

Position Summary:

Benchmark Factoring

Classification Factor Level:

The predominate work of this position consists of:

Factor level Comparison:

Benchmark Comparisons:

Classifier Signature	**Title**	**Date**

Upon completion of this section the classifier should make certain that the Job Code Number, Job Code Title and Pay Band on the first page of this document accurately reflect the Choice of Class Series and classification factor level determined above. Attach Organizational Chart, Audit Notes or other pertinent information.

This completed document should now be filed in: I:\Classref\Agencyjp\(agency#)\(filename).
File naming convention is: (position#)jp(date).doc (e.g. 000573jp0100.doc, where date is: month year).